

Ch. 7: Scatterplots, Association, Correlation

- * Put your data on the front board: Height and shoe size
- * Boys = blue markers
- * Girls = black markers

Scatterplots: Notes

- Shows the relationship between 2 QUANTITATIVE variables
- Can show categorical variables by COLOR OR SYMBOL
- Individuals are represented by the DOTS on the plot
- Explanatory Variable: (independent variable)
 - On the X axis
 - Explains or causes the change in the Y variable
- Response Variable: (dependent variable)
 - On the Y axis
 - Measures the outcome of an experiment or study

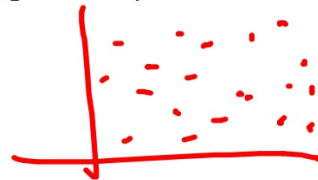
Interpreting Scatterplots:

Overall pattern

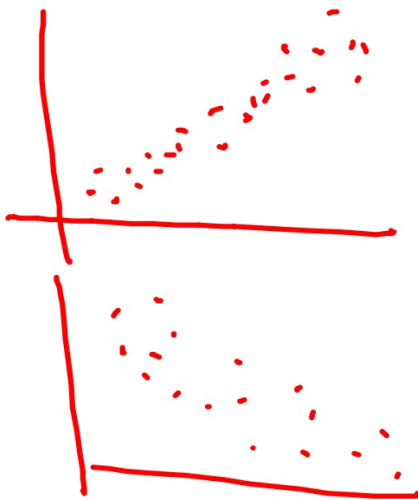
- Get a sense of what the data/plot looks like in general, then **comment on the following 3 things**

(1) Form

scattered



Linear:



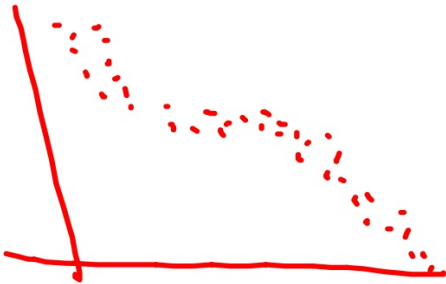
Curved:



(2) Direction

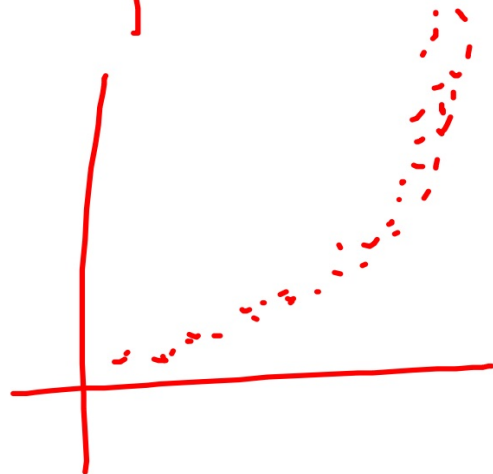
Negative Association

as $x \uparrow$, $y \downarrow$



as $x \uparrow$, $y \uparrow$

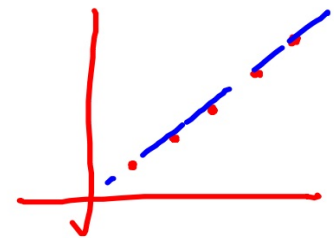
Positive Association



(3) Strength- How well the points fit a form (curved or linear)

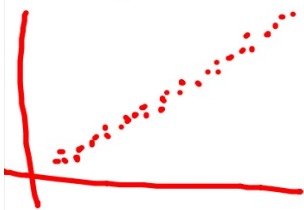
- Use the following words (or combinations of these):

- weak
- moderate
- strong
- scattered



Examples:

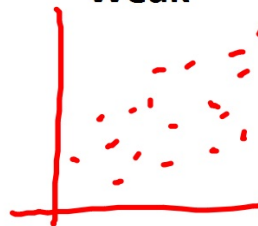
Strong



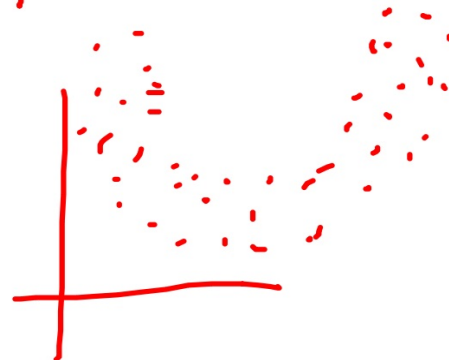
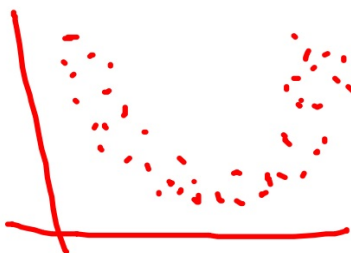
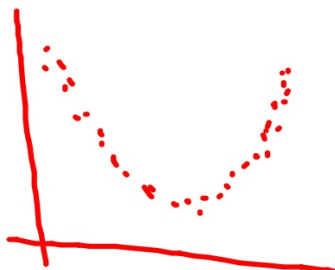
Moderate



Weak

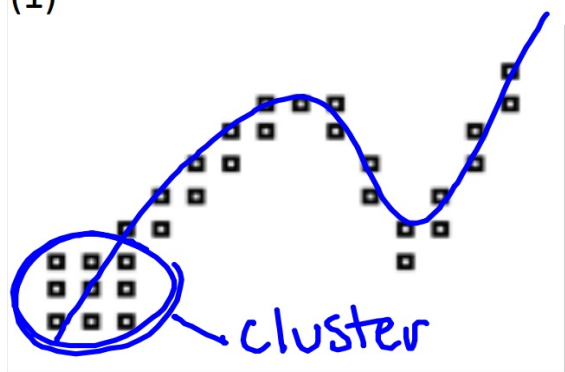


Scattered

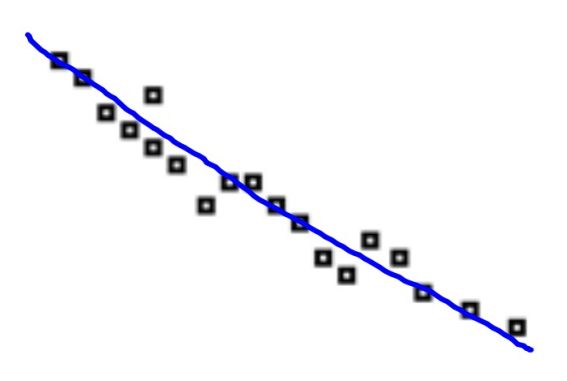


Examples:

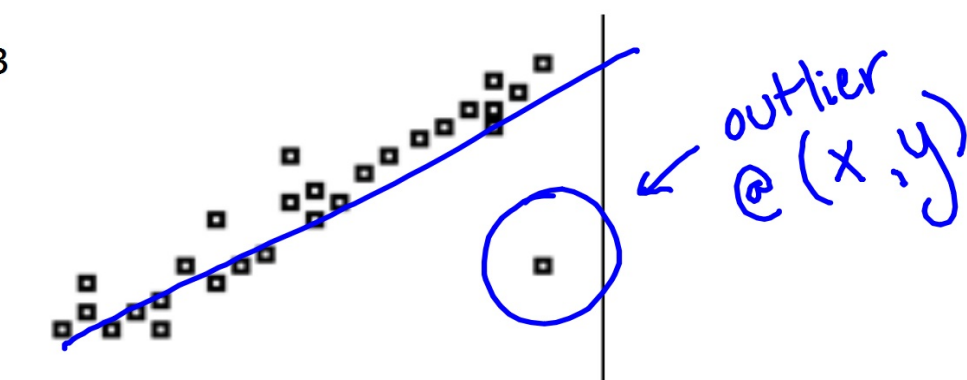
(1)



(2)

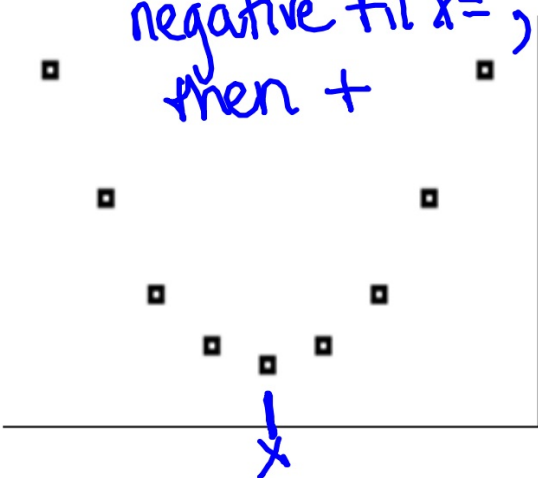


(3)

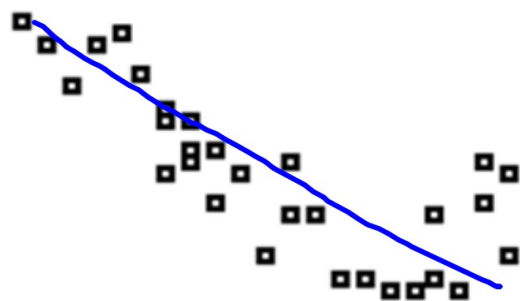


You try these:

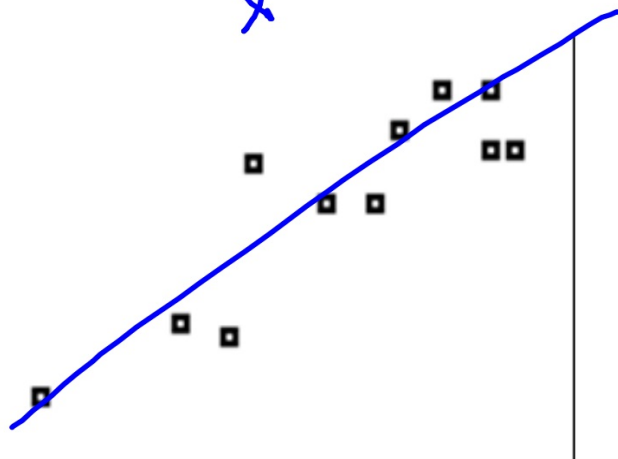
(1) negative til $x=$,
then +



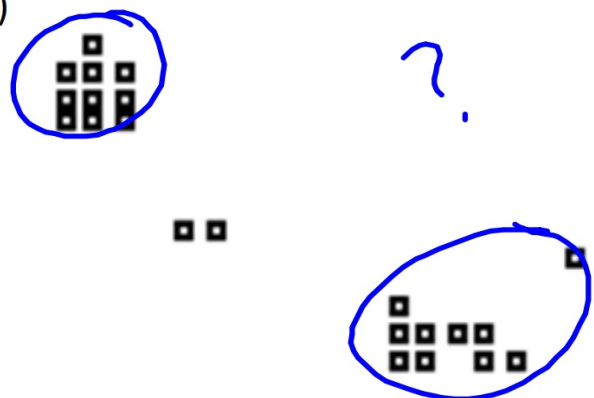
(2)



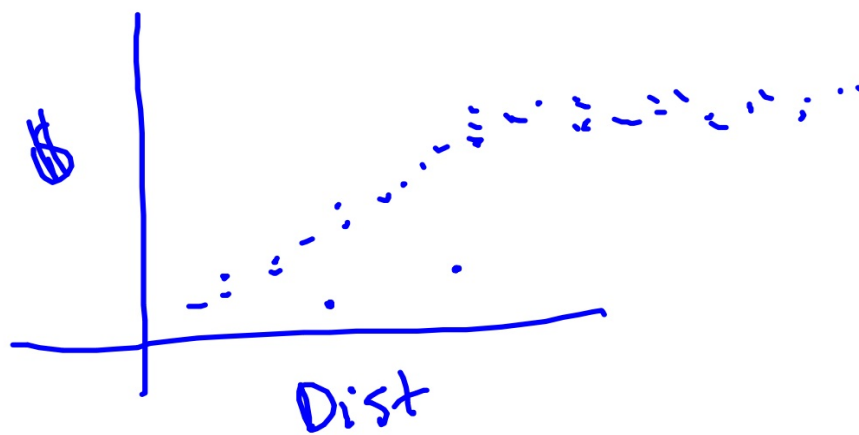
(3)



(4)

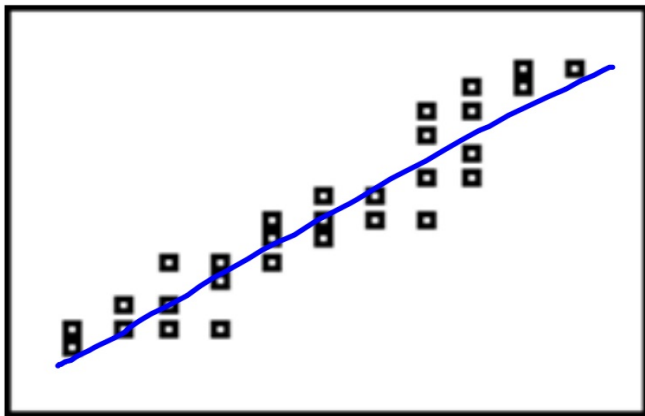


**** Now complete the 7A worksheet about describing scatterplots**

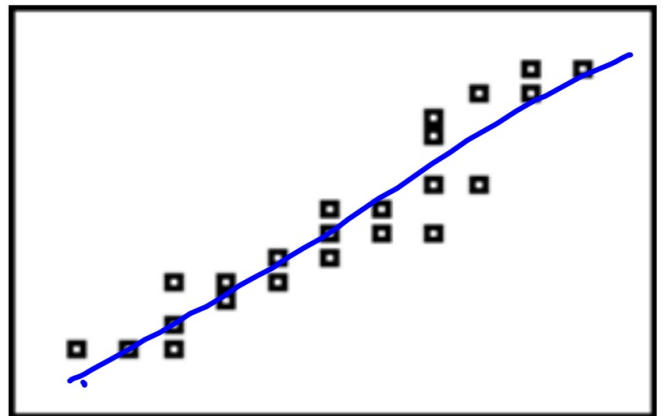


WHAT PLOT HAS THE STRONGER RELATIONSHIP? BY HOW MUCH??

A



B



Correlation:

Symbol:

r

Definition:

— Tells the linear
strength of a plot.
(and association)

Formula:

↖ + or -

* Grouping/Ungrouping

* How to make scatterplots on the calculator

* Deleting a point from a list

* Using the program CORR

**Complete worksheet 7B

Correlation coefficient..... the last few notes.....

BE CAREFUL!! Correlation does not mean causation!